

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016636**Date Inspected:** 30-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS OBG**Summary of Items Observed:**

The Quality Assurance (QA) Inspector, Rick Bettencourt was on site at the job site between the times noted above.

The QA Inspector was on site to randomly observe the in process welding and inspection of the weld joints identified as "A" stiffeners, hole restoration, and the following observations were made:

1E-pp8.5-E4-2

The QA Inspector randomly observed the ABF welder identified as Wai Kitlai performing the flux cored arc welding cover pass of the above identified complete joint penetration (CJP) groove weld. The QA Inspector noted the weld joint was started on Friday 8-27-10 and the minimum required preheat of 200°F did appear to be maintained upon the arrival of the QA Inspector in the am. The QA Inspector noted the weld joint appeared to be approximately 75% complete upon the arrival of the QA Inspector. The QA Inspector randomly observed the Smith Emery (SE) Quality Control (QC) Inspector Mike Johnson was on site to monitor and record the in process welding of the above identified weld joint. The QA Inspector randomly observed and noted the FCAW parameters were 250 Amps and 23 Volts with a travel speed of 250mm/min. The QA Inspector noted the travel speed appeared to be in general compliance with the contract requirements. The QA Inspector randomly observed the cover pass was completed at 0845. The QA Inspector noted the 3 hour post weld heat treat was started immediately and was maintained for 3 hours at 200°F.

1E-pp11-E3-3

1E-pp11-E4-3

The QA Inspector randomly observed the ABF welder identified as Rick Clayborn begin setting up to perform the SMAW root pass at both of the above identified locations. The QA Inspector randomly observed the ABF welder

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perform some base metal grinding of the top deck plate insert prior to commencing the SMAW root pass. The QA Inspector randomly observed the ABF welder grind the precut bevels from 30° to 45°, the QA Inspector randomly verified the bevel angles and noted they appeared to be in general compliance with the contract requirements. The QA Inspector randomly observed the ABF welder had previously installed ceramic backing to the underside of the top deck plate and held in place with adhesive. The QA Inspector randomly observed the ABF welder had set the circular deck insert onto the ceramic backing and held in place utilizing magnets. The QA Inspector performed a random visual inspection of the fit up and noted the root opening, bevel angle and planar alignment of the complete joint penetration (CJP) groove weld appeared to meet the general requirements of the contract documents.

The QA Inspector randomly observed the ABF welder preheat the area to approximately 100°F prior to performing any SMAW. After the minimum required preheat had been achieved, the QA Inspector randomly observed the ABF welder begin the SMAW root pass. The QA Inspector noted the SE QC Inspector Mike Johnson was on site to monitor and record the in process production welding at the above identified location. The QA Inspector randomly observed the SMAW parameters to be approximately 130 Amps with 1/8" E7018 low hydrogen electrodes. The QA Inspector randomly observed the in process welding parameters and dimensional tolerances appeared to be in general compliance with the approved welding procedure identified as ABF-WPS-D1.5-1050-A. The QA Inspector noted the ABF welder did complete the SMAW root pass for both of the above identified weld joints. The QA Inspector noted Rick Clayborn was welding the SMAW root passes and then moving on to fit and weld the next deck insert root pass.

### 3E/4E-A-LS-5

Upon the arrival of the QA Inspector at the above identified location, the QA Inspector randomly observed the ABF welder Hua Qiang Hwang preparing to begin the SMAW root pass. The QA Inspector randomly observed the ABF welder preheat the material to 200°F utilizing a rosebud torch. The QA Inspector noted the SE QC Inspector John Pagliero was on site monitoring the in process preheats and welding parameters of approved welding procedure identified as ABF-WPS-D1.5-1012-3. The QA Inspector performed a random visual inspection of the above identified stiffener plates and noted an 8mm-11mm gap was still present at the time of the QA Inspectors arrival. The QA Inspector noted additional welding and grinding would be required prior to production welding. The QA Inspector randomly observed the ABF welder remove the E9018 1/8" electrodes from the rod container at 0730. The QA Inspector noted the maximum exposure time for the above identified electrodes is one hour. The QA Inspector randomly observed the ABF welder begin the SMAW root/fill passes on the above identified weld joint. The QA Inspector noted the SMAW parameters were 130 amps and appeared to be in general compliance with the above identified WPS. The QA Inspector noted the ABF welder continued performing the SMAW root/fill passes from the remainder of the QA Inspectors shift.

### 3E/4E-A-LS-1, 2, 3

The QA Inspector was informed by the SE QC Inspector John Pagliero, all three of the above identified stiffeners had planar misalignment in which exceeds the maximum allowable by AWS D1.5-02. The QA Inspector noted the maximum allowable planar misalignment is 3mm with the given thickness of 30mm and 35mm of the longitudinal "A" stiffeners. The QA Inspector noted the planar misalignment appeared to be 2-6.5mm for all three stiffeners with #1 stiffener the worse case scenario with 6.5mm of plane off set. The QA Inspector Rick Bettencourt and the QA Task Lead Inspector Bill Levell met with the ABF Welding Quality Control Manager (WQCM) Jim Bowers about the above identified issue (see summary of conversations).

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### Summary of Conversations:

The ABF WQCM Jim Bowers asked the QA Task Lead Inspector Bill Levell if ABF could have a verbal approval to proceed with the welding at 3E/4E-A-LS-1, 2, 3 and transition the off set members by welding with a 2.5:1 slope. The QA Inspector informed Mr. Bowers that decision would need to be made by Patrick Lowry. Mr. Levell, spoke with Mr. Lowry via phone conversation about the contracts request to proceed with production welding. Mr. Lowry informed Mr. Levell the contract may proceed with production welding provided the contractor submit an RFI officially requesting to transition the off set members. The QA Inspector noted Mr. Levell relayed the information to the ABF WQCM Jim Bowers.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916)-813-3677, who represents the Office of Structural Materials for your project.

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| <b>Inspected By:</b> | Bettencourt,Rick | Quality Assurance Inspector |
| <b>Reviewed By:</b>  | Levell,Bill      | QA Reviewer                 |

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